

CLAIMS

1. A toothbrush, comprising:
 - i) an elongated handle having distal and proximal ends and one or more elastomeric handle regions therein; and
 - ii) a resiliently flexible head attached to the proximal end of the handle, the head including a pair of opposing faces, one of the pair being a bristle-bearing face with bristles attached to and extending from the face, wherein at least one of the pair has one or more elastomer-containing, transverse grooves therein; and
 - iii) one or more elastomer supply channels extending between the elastomeric handle regions and the transverse grooves,

whereby at least one of the elastomeric handle regions and the transverse grooves can be filled with elastomer from a single injection point.
2. A toothbrush according to Claim 1 wherein all of the elastomeric handle regions and the transverse grooves can be filled with elastomer from a single injection point.
3. A toothbrush according to Claim 2 wherein at least one supply channel extends to the distal end of the handle.
4. A toothbrush according to Claim 3 wherein the elastomer injection point is located at the distal end of the handle.
5. A toothbrush according to Claim 4 wherein both the bristle-bearing face and the opposing face include transverse grooves therein.
6. A toothbrush according to Claim 5 wherein the transverse grooves divide the head into segments which are flexibly connected by hinges, wherein each hinge is located between the opposing faces and at a distance of at least about 10% of the depth of the head from each of the faces, the hinges being less than the full width of the head.
7. A toothbrush according to Claim 6 wherein handle is made from an opaque material and the supply channel passes from one face of the handle to its opposite face so that when filled with elastomer, the supply channel appears to be discontinuous.

8. A method for making the toothbrush according to claim 1 comprising the step of injecting molten elastomer, under pressure, into the injection point and causing it to flow along the supply channel and into the grooves.

9. A toothbrush comprising a handle and an articulated head, said head having at least two sections to thereby define a composite head having an upper surface and a lower surface, said at least two sections having respective longitudinally spaced ends facing each other, each of said head sections having a plurality of tufts of bristles extending from the lower surface thereof, said facing ends having an elastomeric material therebetween, said handle area having a molded-in channel that may be used to introduce elastomeric material into said head.

10. The toothbrush of claim 9, wherein the handle includes a grip, and wherein elastomeric material may be introduced into said molded-in channel though said grip.

11. The toothbrush of claim 9, wherein at least some of the tufts extending from the bottom surface of one of said head sections are of uniformly different lengths.

12. The toothbrush of claim 9, wherein the free ends of at least some of the tufts extending from one of said head sections form a slant with respect to the lower surface of said head section.

13. The toothbrush of claim 12, wherein the elastomer between the facing ends forms at least one wing portion along the longitudinal axis of the upper surface of the head.

14. The toothbrush of claim 9, wherein the elastomer between the facing ends is generally T shaped.

15. The toothbrush of claim 12, wherein the elastomer between the facing ends is generally T shaped.

16. A toothbrush comprising a handle and an articulated head, said head having at least two sections to thereby define a composite head having an upper surface and a lower surface, said at least two sections having respective longitudinally spaced ends facing each other, each of said head sections having a plurality of tufts of bristles extending from the lower surface thereof, said facing ends having an elastomeric material therebetween, wherein at least some of the tufts extending from the bottom surface of one of said head sections are of uniformly different lengths, wherein at least some of the free ends of the tufts extending from one of said head sections form a slant with respect to the lower surface of said head section, wherein the length of the elastomer between the facing ends of said two head sections varies, said length being measured along the toothbrush longitudinal axis.

17. The toothbrush of claim 16, wherein the elastomer between the facing ends forms at least one wing portion along the longitudinal axis of the upper surface of the head.

18. The toothbrush of claim 17, wherein the elastomer between the facing ends is generally T shaped.

19. A toothbrush comprising a handle and an articulated head, said head having at least two sections to thereby define a composite head having an upper surface and a lower surface, said at least two sections having respective longitudinally spaced ends facing each other, each of said head sections having a plurality of tufts of bristles extending from the lower surface thereof, said facing ends having an elastomeric material therebetween, wherein the length of the elastomer between the facing ends of said two head sections varies, said length being measured along the toothbrush longitudinal axis.

20. The toothbrush of claim 19, wherein the elastomer between the facing ends forms at least one wing portion along the longitudinal axis of the upper surface of the head.

21. The toothbrush of claim 19, wherein the elastomer between the facing ends is generally T shaped.

22. A method of producing a toothbrush comprising:
molding, of one material, a toothbrush handle aligned with and integrally joined to a composite head, the composite head including at least a first and a second section, the composite head having an upper and lower surface, the first section and the second section having respective longitudinally spaced ends facing each other, the handle having a molded in channel that may be used to introduce elastomeric material into said head;

injecting an elastomer into the molded in channel; and

tufting both the first section and the second section each with a plurality of tufts.

23. The method of claim 22, wherein the tufts extending from one of said head sections are of uniformly different lengths.

24. The method of claim 22, wherein the length of the elastomer between the facing ends of said two head sections varies, said length being measured along the toothbrush longitudinal axis.

25. The method of claim 22, wherein the step of tufting both the first section and the second section is performed after the step of injecting an elastomer into the molded in channel.

26. A method of producing a toothbrush comprising:

molding, of one material, a toothbrush handle aligned with and integrally joined to a composite head, the composite head including at least a first and a second section, the composite head having an upper and lower surface, the first section and the second section having respective longitudinally spaced ends facing each other, the handle having a molded in channel that may be used to introduce elastomeric material into said head;

injecting an elastomer between said facing ends of said first and second sections; and tufting both the first section and the second section each with a plurality of tufts, wherein the length of the elastomer between the facing ends of said two head sections varies, said length being measured along the toothbrush longitudinal axis.

27. A method of producing a toothbrush comprising:
molding, of one material, a toothbrush handle aligned with and integrally joined to a composite head, the composite head including at least a first and a second section, the composite head having an upper and lower surface, the first section and the second section having respective longitudinally spaced ends facing each other, the handle having a molded in channel that may be used to introduce elastomeric material into said head;

injecting an elastomer between said facing ends of said first and second sections; and tufting both the first section and the second section each with a plurality of tufts.

28. The method of claim 27, wherein the tufts are organized as rows substantially transverse to the longitudinal axis of the toothbrush handle, and wherein the rows of tufts extending from one of said head sections are of uniformly different lengths.

29. The method of claim 27, wherein the step of tufting both the first section and the second section is performed after the step of injecting an elastomer between said facing ends of said first and second sections.

30. A toothbrush comprising a handle and an articulated head, said head having at least two sections to thereby define a composite head having an upper surface and a lower surface, said at least two sections having respective longitudinally spaced ends facing each other, each of said head sections having a plurality of tufts of bristles extending from the lower surface thereof, said facing ends having an elastomeric material therebetween, said handle area having a

molded-in channel that may be used to introduce elastomeric material into said head, wherein the length of the elastomer between facing ends of said head sections varies, said length being measured along the toothbrush longitudinal axis.